Commentary on Salloum et al.(2018): rethinking adolescent cannabis use and risk perception

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With rapidly evolving cannabis markets in the USA and elsewhere, collecting data on different cannabis products and routes of administration will be important for understanding new trends in adolescent cannabis use and risk perception

The Monitoring the Future (MTF) survey from 1975-present has documented a compelling negative correlation, between changes in the perceived risks of cannabis and prevalence of cannabis use in adolescents. Under the assumption that these variables are causally related, they are typically interpreted as evidence that changes in risk perception influence subsequent cannabis use (1). This scenario offers a major argument against the legalisation of cannabis, as increased societal acceptance of cannabis may decrease adolescents' perception of risks and therefore increase use. Less attention has been paid to an alternative interpretation, that using cannabis may decrease the perceived risks of cannabis. In a longitudinal study of 9,929 adolescents from the MTF survey, Salloum et al. (2) provide evidence to support both interpretations. Crucially, associations between cannabis use and risk perception were over two times stronger than those between risk perception and cannabis use.

These findings challenge the assumption that the relationship between risk perception and cannabis use will always be unidirectional. Additional factors may also contribute to the interplay between cannabis use and risk perception. Cannabis products with high delta-9-tetrahydrocannabinol (THC) concentrations are rated by users as carrying greater risks (3) and are associated with poorer mental health and addiction outcomes (3-6). Ultra-high potency extracts (~70% THC) currently form over 20% of the market in Washington State (7) and will be assessed in the new Adolescent Brain and Cognitive Development cohort (8). As cannabis markets in the USA continue to evolve, collecting data on different cannabis products in future iterations of the MTF survey could improve our understanding of risk perception and its relationship to patterns of use.

Additionally, the risks of using cannabis may be influenced by route of administration (e.g. smoked, vaporized or eaten; (9-11)). In 2017 MTF began collecting data on cannabis vaping for the first time; over a quarter of cannabis-using respondents had experience of vaping cannabis (12). Although research into cannabis vaping is in its infancy, it does raise parallel issues to those of e-cigarettes and smoked tobacco (13) where comparative assessment of risk is of paramount importance for public health (14).

Adolescents' decisions to use cannabis are unlikely to be driven by risk alone; perceived benefits may also be important. An international survey of 5,791 drug users (15) found that cannabis was rated as having the highest beneficial effects of all 15 drugs included, as well as the greatest benefit-to-harm ratio. Moreover, positive experiences of using cannabis in adolescence are associated with a greater incidence of cannabis dependence in early adulthood (16). Understanding the competing roles of perceived benefits and risks could improve our understanding of trends in adolescent cannabis use, in addition to associations between risk and use reported by Salloum et al.(2).

The results of Salloum et al. have direct implications for the development of programs designed to prevent or delay the onset of cannabis use in adolescents. Current evidence-based programs often include components that are designed to address adolescents' perceptions of the harmful effects of drugs (17) which are shown to be successful in deterring the onset of cannabis and it's progression of use (18). For prevention to be most effective it needs to be introduced during the early adolescent years, prior to the initial exposure of cannabis use and before the effects of cannabis can impact on an individual's perception of risk. In this way an individual's risk perception can be guided by scientific evidence on objective risks, rather than the immediate subjective effects of the drug. In order to be relevant for the next generation of young people, drug prevention programs should include up-to-date information on the risks associated with new cannabis products and routes of administration.

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